

**BLISSUS BREVIUSCULUS: NEW DISTRIBUTION
RECORDS OF A LITTLE-KNOWN CHINCH BUG
(HETEROPTERA: LYGAEIDAE)**

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Abstract.—*Blissus brevisculus* Barber is a poorly known blissine lygaeid that is rare in collections because of its cryptic habits; nymphs and adults live deep within crowns of little bluestem, *Schizachrium scoparium* (Michx.) Nash (Graminae). Known previously from Connecticut, Maine, and Massachusetts, *B. brevisculus* is recorded from a serpentine barren in southeastern Pennsylvania. A suction-sampling machine (D-Vac) was used to extract specimens from crowns of its host plant. A New York record, based on a specimen collected prior to Barber's original description and housed in the U.S. National Museum of Natural History collection, is given; two additional Massachusetts localities, based on USNM specimens, are also cited. Parshley's (1917) record of "*Blissus hirtus* Montandon" from Maine is referred to *B. brevisculus*.

Blissus brevisculus Barber belongs to the lygaeid subfamily Blissinae, an Old and New World group restricted to monocotyledonous plants, particularly grasses. Rather than feeding on seeds like most other Lygaeidae, a great many of which live in litter, blissines extract sap from leaves, stems, and roots of host plants (Slater, 1976). As currently recognized, the genus is limited to the Western Hemisphere (Slater, 1979). Its members include the infamous chinch bug, *B. leucopterus leucopterus* (Say), a grain pest that threatened early North American agriculture; *B. leucopterus hirtus*, a major pest of turfgrasses in New England and the mid-Atlantic states; and *B. insularis* Barber, a well-known lawn pest in the southern United States (Leonard, 1966; Tashiro, 1987). Other species, especially those associated with native grasses in the western states and midwestern prairies, or living along coastal dunes, are seldom collected.

Herein, we give new distribution records for a little-known eastern species, *B. brevisculus*. Listed previously only from three localities in New England, this blissine is recorded from a serpentine barren in southeastern Pennsylvania. An unpublished New York record, based on a museum specimen collected prior to Barber's original description, is given along with two additional Massachusetts records based on museum specimens. We also have determined that Parshley's (1917) record of "*Blissus hirtus* Montandon" from Maine should be referred to *B. brevisculus*. Voucher specimens from Pennsylvania have been deposited in the collections of Cornell University (CUIC), Pennsylvania Department of Agriculture (PDA), and U.S. National Museum of Natural History (USNM).

Blissus brevisculus Barber

Barber (1937) described this small (about 2.4 mm), black, densely pilose bug (Fig. 1) from four specimens from Wareham, Massachusetts, and one from Harbor, Maine.³ The Maine specimen would appear to be the one Parshley (1917) cited as *B. hirtus* Montandon from the same locality; month, day, and collector also are identical, and the year, 1912, could have been misread by Barber as 1915. The only other published record of this poorly known lygaeid is New Haven, Connecticut, where Leonard (1968) collected nymphs (instars I–V) and adults from crowns of little bluestem, *Schizachrium scoparium* (Michx.) Nash, a perennial bunch grass formerly placed in the genus *Andropogon*.

Leonard (1968) erroneously credited Barber (1937) with saying that this species “. . . was collected on a lake shore, by shaking out clumps of grass.” In the original description, however, the Massachusetts specimens were said to have been taken under stones by C. A. Frost. We have not located a published source of the statement Leonard attributed to Barber, but four specimens in the USNM collection, taken by Frost at Framingham, Massachusetts, subsequent to the original description (30 May 1947), bear labels indicating they were collected on the shore of a farm pond from tufts of grass growing in sand. Frost collected another specimen near this pond on 30 Sept. 1949. The USNM collection also contains a specimen collected by Frost at Berlin, Massachusetts, 30 July 1937, by sweeping grass, and one from Indian Lake, Sabael, New York, 19 Aug. 1921 (collector unknown). The latter specimen, bearing H. G. Barber's undated determination label, undoubtedly was identified after he described this species.

As Leonard (1968) noted, *B. brevisculus* lives deep within crowns of *S. scoparium* and is difficult to collect. Our discovery of this lygaeid in Pennsylvania was fortuitous. We found two adults among arthropod material extracted with a Berlese funnel from little bluestem plants that had been dug on 21 June 1988 from the New Texas barren south of Wakefield (Lancaster Co.) near the Maryland state line (Fig. 2). This serpentine community of about 103 ha (255 acres) is characterized by large open areas of little bluestem and other grasses (Wheeler, 1988). We obtained additional material by using a D-Vac machine (Dietrick, 1961) to suck nymphs and adults from crowns of *S. scoparium*. On 18 August, we collected 4 third-instar nymphs and 3 fourth instars; 6 fifth instars and 22 adults were taken on 16 September.

All adults collected were brachypterous. Sweet (1964) discussed wing polymorphism in lygaeids, emphasizing that brachyptery usually is associated with relatively permanent habitats. The serpentine barrens are such a habitat, having had minimal human disturbance. *Blissus brevisculus* does occur in more temporary habitats (e.g., in grass along the shore of farm ponds), and macropterous individuals are known from New England populations of this typically brachypterous species (Leonard, 1968). Slater (1977) noted that in addition to habitat permanency, the “ecological-time” stability of the bug's specific habitat (niche) is important in the development of flightlessness in the Lygaeidae. He concluded that wing reduction is apparently

³ “Harbor, Maine” perhaps should refer to Bar Harbor, Northeast Harbor, Seal Harbor, Southwest Harbor, or other locality in the Mount Desert region of Hancock County that has “Harbor” as part of its name.



Fig. 1. *Blissus breviusculus*, adult habitus.

restricted to litter-inhabiting species and to monocot sheath-living species (lamina-
philes). For *B. breviusculus*, leaf sheaths of little bluestem in serpentine barrens would
seem to provide a specific habitat or niche of ecological-time stability (sensu Slater,
1977).

Although we found *B. breviusculus* in different areas of the New Texas barren, we
were unable to collect it in two other state line barrens—Goat Hill and Nottingham
County Park (Wheeler, 1988)—even when a D-Vac machine was used. This lygaeid

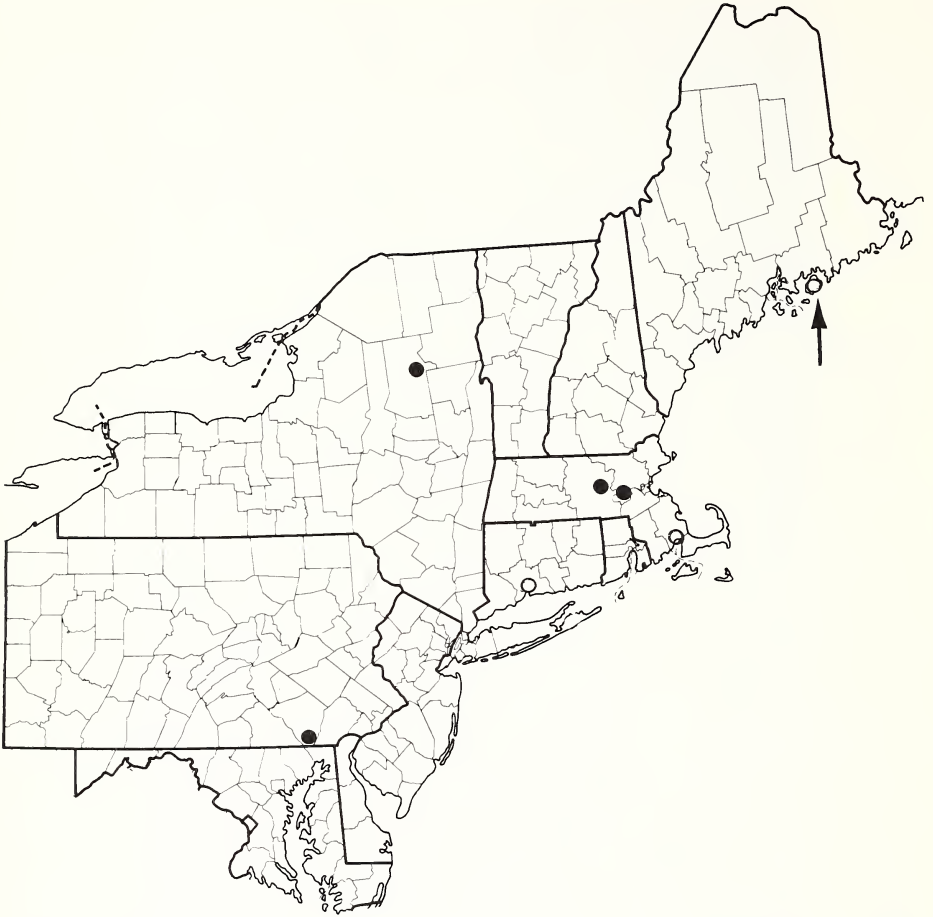


Fig. 2. Known distribution of *Blissus brevisculus*. Open circles represent previously published records; closed circles represent new records: New York (and additional Massachusetts localities) based on USNM specimens, and Pennsylvania, based on our recent collecting.

appears to be abundant and generally distributed at New Texas but may not be present in all nearby barrens. Its absence from similar habitats might be expected. Serpentine barrens have been described as relatively undisturbed ecological islands within the eastern deciduous forest. The sparse, usually stunted vegetation of these nutrient-poor soils, which contrasts with the surrounding forest or farmland, is characterized by endemic or near-endemic species, morphological variants, and plants of disjunct distribution (Proctor and Woodell, 1975; Miller, 1977; Mansberg and Wentworth, 1984; Wheeler, 1988). *Diabrotica cristata*, a chrysomelid characteristic of midwestern prairies, recently was found in five eastern serpentine barrens but could not be collected in a sixth, nearby barren (Wheeler, 1988).

Blissus brevisculus is now known from habitats ranging from rather temporary

(shore of a farm pond) to more permanent (serpentine barrens); almost certainly it is more widely distributed than current records reflect (Fig. 2). Additional information on distribution of this and other seldom-collected species of the genus might be useful in establishing biogeographic patterns and, in a broad sense, contribute to phylogenetic analyses of the group.

Blissus brevisculus and the midwestern *B. iowensis*, another rarely collected species, not only are morphologically similar but are univoltine lygaeids that may specialize on little bluestem. They may have had a common ancestor that was widely distributed across the country during xeric phases of the Pleistocene and, when climate became cooler and more humid, became isolated by the return of forests in the East. In contrast, economically important *Blissus* spp. are multivoltine (Leonard, 1966, 1968) and tend to have a broader host range (Slater, 1976). The poorly known members of the genus should not be ignored. A better understanding of their habits might help elucidate the evolution of host relationships in *Blissus* and help explain why certain species have become pests (e.g., with selection away from the brachypterous condition in midwestern *B. l. leucopterus*), while *B. brevisculus* and others remain obscure.

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